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## Front-runners and newcomers: The dynamics of momentum in electoral politics as explained by cue competition

Jeremy Ashton Houska

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FRONT-RUNNERS AND NEWCOMERS: THE DYNAMICS OF  
MOMENTUM IN ELECTORAL POLITICS AS  
EXPLAINED BY CUE COMPETITION

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A Thesis  
Presented to the  
Faculty of  
California State University,  
San Bernardino

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts  
in  
Psychology:  
General-Experimental

---

by  
Jeremy Ashton Houska

December 2005

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Jeremy Ashton Houska  
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## ABSTRACT

The relationship between interpersonal attraction and attitude similarity was exploited to experimentally study momentum in voting behavior. To examine the dynamics of electoral politics, specifically *momentum*, social variables were assumed to function in a manner analogous to familiar conditioning variables. Corresponding to a conditioned stimulus, for example, was a political candidate (CS analog). Pairing the CS analog with an unconditioned stimulus (US) analog such as feedback revealing attitudinal agreement between candidate and participant on political issues corresponded to a CS-US conditioning trial. Social analogs of compound conditioning were also manipulated. The results revealed the predicted acquisition of voting behavior and a candidate "unblocking effect." These findings were discussed from an interpersonal attraction and evaluative conditioning perspective in order to inform our understanding of political psychology. The potential for the continued application of learning procedures and principles in political psychology was discussed.

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A tribute goes to my mother, father, and brother who have given me the love and emotional support also necessary in my educational pursuits. I dedicate this project to Nadia in recognition of the risks she took.

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## CHAPTER ONE

### INTRODUCTION

#### Literature Review

Even less understood than general elections in our two party system are the variables and dynamics affecting voter choice in presidential primaries. This unique American institution, practiced in 35 states (Haskell, 1996) and spread over the course of three and a half months, is a process in which candidates compete for their party's presidential nomination (Bartels, 1988). Although they receive considerable media coverage during the election season, presidential primaries have not received adequate attention in political psychology. The limited research on the presidential nomination process focuses upon the alleged volatility of these elections or the "horse race." Such work can be characterized as historical accounts and archival research of front-runners, relative unknowns and the frequently debated, often elusive concept of "momentum" (Bartels, 1988; Mayer, 2004; Norrander, 1992; Popkin, 1993).

In the primaries early victories result in a candidate receiving valuable media attention. As weekly contests are previewed, reported and interpreted by

anchors and pundits this exposure is believed to favorably influence a candidate's support base (Bartels, 1988). In another way voters learn increasingly more about the candidates with early success because of this media exposure, and this helps them garner support. The early primary states (i.e. New Hampshire, Iowa) are thought to dramatically influence later events. Since campaigning in the early states signal the beginning of the primary season, this may be why their coverage is exaggerated. Primaries in New Hampshire and Iowa, therefore, figure prominently in political strategists' plans.

Early victories in the initial state primaries can dub a candidate the *front-runner*. Mayer (2004) argues that the nomination process itself is one that gives the front-runner considerable advantage. On the other hand, Bartels (1988) used the concept of momentum to explain Jimmy Carter's nomination and subsequent ascent to the presidency over the period of January to June 1976. Bartels explains that the circumstances involved in primaries and acquired momentum can allow for new, unknown candidates to gain a party's nomination. Citing modern political history, however, Mayer (2004) finds few momentum-driven candidates other than McGovern in 1972 and Carter in 1976. To date, no one has attempted empirical

research to describe, define, or predict whether front-runners maintain the advantage in the primaries or the tenuous concept of underdog momentum. Controlled laboratory research guided by well-substantiated theory may prove significant in understanding more about the concept of electoral momentum.

### Voting Behavior

#### Attitude Similarity and Voting

Byrne and Nelson's (1965) conditioning research showed that people are more attracted to increasingly similar others in a linear fashion. In short, the more another person is viewed as similar, the more attractive the person becomes (see also Byrne 1961; 1971). Recently Quist and Crano (2003) applied the findings in the attitude similarity and attraction literature to voting behavior. Quist and Crano (2003) examined archival data (1972 National Election Studies) and the results suggested that voters were more likely to vote for candidates with whom they shared similar policy stances. The decision to choose between Nixon and McGovern was examined as well as the perceived attitude similarity on six policy issues (e.g. withdrawal from Vietnam, legalization of marijuana, government action against inflation). Quist and Crano

(2003) concluded, "The assumed-similarity approach suggests one method in which voters choose from competing candidates. Although not perfectly accurate, the prediction approach suggests that presumed attitude similarity plays an important role in voter preferences" (p. 159).

Most research, however, suggests that issue similarity between a voter and candidate does not necessarily predict voting behavior. Although during the primaries candidate issue stances are believed to be of some importance because party identification cues are absent (Brams, 1978), political scientists often argue that issues and ideology do not directly influence voters in presidential primaries (Norrande, 1992). The strongest argument against issues affecting voters is that these models frequently assume that voters have adequate information to make their choice (Bartels, 1988). Moreover, primaries are constantly changing because of the differential rates in learning about the candidates and a political phenomenon known as *momentum* (Bartels, 1988). It is for these reasons that presidential primaries provide a unique occurrence that may be incompatible with the early theorizing of voting behavior constructed for explaining

the less dynamic, perhaps more static presidential elections.

### Momentum

Momentum has been described, but ambiguously defined, by political scientists for nearly the last thirty years. News correspondent Roger Mudd of CBS is believed to be one of the first to use the term "momentum" in describing Hubert Humphrey's coming from far behind in the polls in September 1968 to closing the gap between him and Richard Nixon in October (Aldrich, 1980).

Using Jimmy Carter as the archetype, Bartels (1988) described Carter's victory as one that demonstrated the advantage of using the early events of the primary to create his support. Rather than having to enter the campaign with an overwhelming show of support or through blocking other members of the party by invoking the incumbency factor, Carter seemingly *came out of nowhere* by building momentum (Brams, 1978). Carter's rise to prominence in the 1976 primaries has been emulated by a number of candidates. Still, "despite its recognized political importance, [momentum] has a certain ineffable quality. Experts claim to know it when they see it, but they are not very good at either defining or describing it" (Bartels, 1988, pp. 4-5).

Arterton (1978) considers momentum a *perceptual environment* caused by the "psychological impact of the [early state primary] results" upon the media and candidates themselves (p. 10). Marshall (1981) offers a more tangible description of momentum as "the tendency of polls, activists, delegates, and the media to move behind the eventual nominee" (p. 9). Certainly "having momentum" has become cliché (Mayer, 1987), but the question remains, how does a candidate go about cultivating it?

From a strategist's point of view a candidate needs to take some action that will give him media coverage. Judging by the usual choice of political coverage, atypical campaign news, this is a risky proposition (Bartels, 1988). From a historical perspective, the answer is unequivocal: win New Hampshire. Every elected president since 1952 has won this early primary (Mayer, 1987). Furthermore, in all primaries with more than two candidates, the early front-runner has never lost his ground (Marshall, 1981).

With each victory or mention on the evening news candidates gain exposure and, in turn, these candidates become familiar to voters while others are pushed to the back of the pack. Momentum can also be described as letting the events of the primary drive a candidate's

familiarity (Norrande, 1992). Since the media focus an inequitable amount of positive attention on the winning candidate and provide relatively little coverage of those who finish in second and third place, the early leader's image is magnified and reinforced (Marshall, 1981). The media do more than praise the front runner, news coverage is often about those candidates performing more poorly than expected and their dubious missteps over the course of the primaries (Marshall, 1981). As the media judge and interpret each step of the "horse race," the leading candidate is likely to be tabbed the party's choice well before the national convention (Marshall, 1981).

Once momentum builds for a candidate, it would seem as if there is no overcoming it. Recall the historical import of the New Hampshire primary (see Orren & Polsby, 1987 for further review). The unpredictable cases of random historical events can always, in theory, overcome this momentum, but another possibility lies in the grasp of the campaign strategists themselves (Aldrich, 1980). Strategists are well compensated for their ability to create and utilize political tactics, and for making changes in response to the events that take place over the course of the early primaries for their respective candidates.



As it stands today, there are two positions concerning the use of momentum, or political strategy aside from changes in ideology, interests, or rhetoric. An important question addressed by this research is whether it is possible for an unknown newcomer who may gain momentum toward the end and win the party nomination. Although late-breaking candidates are much rarer, historically, some political scientists liken predicting presidential nominees to handicapping sports (e.g., Mayer, 1987).

If this suggestion proves to be of merit, just as the 1988 Los Angeles Dodgers played over their proverbial heads against the formidable (and perhaps chemically-enhanced) Oakland Athletics, political front runners and heavy favorites can and do fall. As improbable as Kirk Gibson's fabled home run off Dennis Eckersley, unexpected campaign events can also make for unlikely outcomes. In the 1972 primaries, campaign scheduling problems and a highly publicized loss of personal control forced Edmund Muskie's withdrawal from the primaries and let George McGovern into the race and toward the Democratic nomination (Keech & Matthews, 1976).

As political scientist Aldrich (1980) notes, "empirical observation, in the absence of a theoretical

base, is at best descriptive. It tells one what happened, but not why it has the pattern one perceives" (p. 4).

Taking heed of Aldrich's admonition, this thesis attempts to account for not only the more common occurrence of a political front-runner charging his way to the party nomination, but also the less frequent surge by challengers using a well-established theoretical base: general learning theory. This thesis uses a conditioning account of the positive relationship between attitude similarity and attraction to examine the dynamics of political *momentum* in terms of the *acquisition*, *blocking*, and *unblocking* of primary voting behavior.

First, it will be argued that a candidate who shares attitudes with a voter early in the election establishes momentum, thereby becoming the front-runner. This front-runner who has revealed political attitudes similar to the voter can be said to have *acquired* a high level of voting likelihood. As a result of the front-runner's momentum, a new, but redundant candidate's voting likelihood should be *blocked* although he also shares attitudes similar to the voter. Second, it will be argued that one candidate's political momentum can be overcome if another candidate demonstrates an *increased* level of attitude similarity with the voter. Hence, an unknown

newcomer can be *unblocked* by a front-runner who has built momentum in the early stages of the election cycle if he reveals a greater level of attitude similarity with the voter than did the front-runner.

This thesis seeks to investigate a candidate's political momentum as a force that can be manifested in two ways. Momentum can be manifested over time as in the acquisition of voting likelihood, and in the undermining of another candidate's success by blocking. However, a candidate's momentum can be diminished by a newcomer's unblocking. Such electoral phenomena can be demonstrated in the laboratory using familiar learning analogs.

#### Challenges to Studying Voting Behavior

Political psychology's methodological conundrum was eloquently summarized by Lodge, Stroh, and Wahlke (1990): "Rational choice theories, despite being psychologically barren, represent the only true theory of electoral behavior we have, and even a bad theory is better than no theory at all" (p. 15). One advantage of choice theories is their ability to quantify behavior (Lodge et al., 1990). A notable attempt to apply both general ecological validity and quantification was Kelley and Mirer's (1974) Voter Decision rule. This seminal theory, characterized by its parsimony, describes the voter as tabulating both

negative and positive beliefs about a political candidate. The chosen candidate is predicted to be the one who receives the greatest amount of positive beliefs. This model's fundamental ideas still guide contemporary quantitative models' (e.g. Holbrook, Krosnick, Visser, Gardner, & Cacioppo, 2001; see Taber & Steenbergen, 1995 for a review).

Extending practical theories by way of a naturalistic approach is a priority to political scientists. However, overemphasizing the naturalistic approach can cause other areas of the research to suffer. Taber and Steenbergen (1995), for example, describe the state of voting research as "[having] a vast gap between *prediction* and *explanation*" (p. 141). Lodge, Stroh, and Wahlke (1990) also argue that "voting research has yet to yield a widely accepted body of middle or high-level empirical generalizations, let alone any generally acceptable theory of elections and voting" (p. 6). Considering the common methodology often used by historians and political scientists, such as the National Election Surveys, this can be expected. Because researchers prioritize historical authenticity, they often turn to these surveys to inform their theories. This research strategy does not allow for any examination of the processes or mechanisms underlying

voter decision-making. Instead, it only notes the decision (Lau, 2003). Given limited purposes, the survey method is appropriate, but for a researcher interested in understanding how events over time affect a candidate's electability or how the complex information environment influences voters, it is less useful.

Information boards, which allow research participants to access information at will, is a step toward increasing ecological validity, but remain a poor analogue of actual voting conditions (Taber, 2003). To a certain degree, partisans may selectively favor certain political information when accessing the internet (Ward et al., 2003). It is more likely that voters come into contact with political commercials and newscasts that are more reminiscent of reporting a "horse race" than any substantive issue discussion or policy stances (Ward et al., 2003). In this case there is no selectivity on the part of the viewer (Bimber & Davis, 2003). Furthermore, campaigns are dynamic (Bartels, 1988), and information boards do not account for the ebb and flow of campaign events over time.

### Political Psychology in the Laboratory

Some critical components of a laboratory study are the following. The first priority in a controlled study of

political behavior would be to manipulate voter information, as opposed to letting the voter control the information, such as the case when information boards are used. Second, in order to reduce laboratory artificiality, the political information should continue to flow and change as it does in an actual campaign. Another possibility would be to allow political advertisements to occur without any notice in order to simulate the ubiquitous paid television spots or other distractions (Lau, 2003). The latter two procedures are especially important because events vary over time and the media plays a vital role in voter decision-making.

As important as it is to select the appropriate approach and the proper research methodology in the study of voting behavior, a reconceptualization of the role of the information environment is critical. The media possess considerable influence on voters, but the degree to which it does is a point of contention (see Kinder, 2003 for a review). Media sources such as television news and talk shows do not always overwhelm voters' cognitive resources with the amount of information that is transmitted at a given time. Accordingly, when examining the impact of the media, laboratory research may not always need to address cognitive processing demands. Addressing the various

situations in which voters' cognitive capabilities are affected should not be the primary concern. Instead, research should proceed under the following assumption. That is, voters often have a lack of control over the political information presented to them. A shift away from focusing on the voter's cognitive processes and toward the media is valid. Especially in the case of television news shows, voters have neither diverse sources nor the opportunity to control the information presented (Bimber & Davis, 2003) with voters inevitably shaped by this "lack of selection."

Much of the voter's information environment is determined for him/her by the circumstances and events that take place in the political world. Of course, the media are the transmitters of this information. In an election season, the political happenings capture a considerable share of news broadcasts. Some voters will view this information while others will not. Does differential exposure to media affect voting intentions? The conventional wisdom would have us believe this to be the case. Events as they occur and their broadcast on talk shows and news programs would naturally seem to influence voters.

Interestingly, the information environment is neither routinely included in voting behavior models nor is mentioned as a general influence on voters. As Bartels (1988) notes, "few theorists have attempted to integrate the traditional, liberal emphasis on autonomous individual preferences with an explicit recognition of the powerful dynamic forces at work in many real processes of collective choice" (p. 310). Following Bartels' suggestion and acknowledging the power of the media and events over time, future laboratory research in political psychology could better address ecological validity concerns.

According to political scientists, the existing models of public choice formulated for general elections are not compatible or relevant for application to the primaries (Ceasar, 1982). Some researchers (e.g. Crotty & Jackson, 1985) believe that no systematic theory of candidate choice for the presidential primaries can be conceived because the methods of assessment political science prefers will always allow for better description of past events than prediction of elections.

Researchers are also less than optimistic in theorizing about primaries simply because each campaign's circumstances are different (Ceaser, 1982) and the personalities of the principal players vary each election



(Crotty & Jackson, 1985). Nevertheless, some common characteristics exist in every primary. A perspective that places the emphasis on conceptual similarities, rather than historical and personal differences may illuminate future research. Research can benefit by considering the following assumption and conceptualization.

In primaries, voters respond to new and old information over time in the midst of a complex and changing information environment (Jervis, 1993; Lau & Redlawsk, 2001; Rahn, 1995). For this discussion, this environment can be assumed to have three major components. First, and most critical, is the number of candidates. A party's primary ballot represents a unique information context for voters. Instead of pitting one candidate against another as in a general election, the primary is novel because major candidates as well as minor ones often compete for the party nomination. The primary can be seen as an elimination contest or paring down of the field of competitors (Brams, 1978). Second, the primary must be studied with recognition of the dynamic context because the state contests are stretched over a considerable period of time, and these critical events are liable have an effect on the eventual nomination outcome (Aldrich, 1980).

Third, the media exerts considerable influence on voters. News anchors, reporters, and political pundits often report the results of each state's primary "horse-race" and deliver daily polls and predictions. Besides reporting, they offer their commentary about the candidates. Voters possess or exercise little control over the information which is disseminated in both the print and broadcast media (Bimber & Davis, 2003). Considering this low selectivity allowed by television news and talk shows (Bimber & Davis, 2003), a new approach to studying voting behavior that accounts for the unique social context and information environment of the primaries may be warranted.

At the present time, general models of voting behavior do not include mechanisms to address differential exposure to candidates and a quickly-evolving information environment. As Bartels (1988) notes, the research on primaries must no longer remain "static, asocial conceptions of the process of public choice" (p. 311). In following Bartels, a calculated shift of focus which is relevant to the novel nature of electoral politics could begin to explain the phenomenon of momentum and subsequent voting behavior.

## Classical Conditioning

A brief description of Pavlov's (1927) influential study of anticipatory salivation in dogs will be presented in order to illustrate basic methods and relevant terms that will be used in this research. In Pavlov's classic studies, two stimuli (e.g., tone and food) were manipulated. The food elicited salivation in the dog without any prior training. Thus, the food or any other stimulus capable of evoking a response is termed an *unconditioned stimulus* (US). A response caused by a US is referred to as an *unconditioned response* (UR). Since the tone is "neutral" and therefore does not elicit a response until frequently paired with the US, it is defined as a *conditioned stimulus* (CS). With sufficient training pairing a CS and US, the CS elicits a conditioned form of the UR, the *conditioned response* (CR). In other words, the CS's ability to elicit a CR is dependent upon training which includes pairing the CS and US. The strength of the CR is positively related to the number of CS-US *trials*, in this case, the number of contiguous tone - food pairings. Trials that include two CSs such as a tone and light are termed *compound CS trials*. When the dog learns that the tone and food are associated, it salivates when the CS is presented, and it is said to have *acquired* the CR. A

*simple contiguity* process involving the CS and US was initially assumed to underlie associative learning.

### Classical Conditioning in Social Psychology

The generality of the classical conditioning procedures, such as CS-US contiguity, and its related theories and phenomena remain a topic of both philosophical and scientific debate (Kehoe & Macrae, 2002). This may be due, in part, to the longstanding misinterpretation of classical conditioning as being inseparable from the "reflex tradition" (see Gormezano & Kehoe, 1975). Nonetheless, animal learning has served as a theoretical foundation for research in many areas in psychology, including social psychology. Consistent with Neal Miller's (1959) general research philosophy, termed an "extension of liberalized S-R theory," social psychologists have frequently used conditioning principles and procedures to examine phenomena such as attitude formation and change, consumer learning, and interpersonal attraction.

### Classical Conditioning of Attitudes

Many of our attitudes toward persons, places and things are learned (Petty & Cacioppo, 1981). Research has shown that attitudes can be acquired as well as modified using classical conditioning (Arenson, Lannon, Offermann,

& Kafton, 1982; Sachs, 1975; Staats & Staats, 1957, 1958; Zanna, Kiesler, & Pilkonis, 1970). Take for instance Staats and Staats (1958) seminal research in which nationalities (e.g., CS = Dutch, Swedish) were paired with positive and negative evaluations (USs). This research, as well as subsequent research, assumed that attitudes have an emotional component. Under the pretext of a visual-auditory learning study, the CSs were visually paired with the USs presented less than a second later. The participants enunciated the USs as they read them. A nationality such as Swedish, paired with words such as "ugly" or "failure" was rated higher in unpleasantness than was a nationality paired with "pretty" and "sweet." Establishing (or changing) attitudes therefore, resulted from conditioning an association between persons, places, and things (CS analogs), and negative or positive affect (US analogs).

#### Classical Conditioning of Consumer Behavior

Another research area that has recognized the power of conditioning is the consumer learning area. The application of classical conditioning principles like simple contiguity provides further confidence in the merits of such an approach. This research assumes that consumer preferences for specific brands can be

conditioned. Gorn's (1982) study is recognized as the first to apply classical conditioning principles to consumer behavior. Two writing pens, a beige one and a blue one, served as the CSs. These CSs were paired with favorable background music (US+) or unfavorable music (US-). After just a single CS-US trial participants were more likely to select the pen paired with the favorable music than the pen paired with unfavorable music. Not surprisingly, research in this area often resembles commercials and television advertising. In research by Stuart, Shimp, and Engle (1987), a novel CS (an unknown brand of toothpaste) was paired with a series of positive USs, including visually attractive water scenes such as a waterfall, and a sunset over water. Participants exposed to the conditioning procedure gave a favorable evaluation of the toothpaste, whereas those in the control group did not.

### Interpersonal Attraction

Attraction research has long benefited from a simple contiguity learning approach. Byrne (1961; 1971) was the first to draw parallels between the conditioning literature and interpersonal behavior (see also Clore & Byrne, 1974). The Byrne-Clore attraction theory described attitudinal agreement as a rewarding (or reinforcing)

social interaction, while disagreement was seen as a negative social interaction. Byrne and Nelson's (1965) law of attraction describes attraction to a stranger (CS analog) as a positive linear function of the proportion of positive social reinforcement (US+ analog) received. For example, a stranger paired with a higher proportion of agreement was rated significantly more favorably than a stranger paired with lower proportions of agreement. Furthermore, US magnitude or strength can be operationalized in terms of stranger agreement on a topic of less or more importance (Byrne & Rhamey, 1965) or interest (Clore & Baldridge, 1968). That is, attraction to a stranger is positively related to the proportion of agreement, and to the attitude topic's importance or interest a stranger is paired with.

#### Contemporary Classical Conditioning

The critical empirical finding that *simple contiguity*, or temporal pairing of the CS and US, does not alone dictate conditioning provides one distinction between general classical conditioning and key assumptions of contemporary classical conditioning theory (Gallistel & Gibbon, 2002). Instead of *contiguity*, it is CS-US *contingency* which propels a contemporary understanding of conditioning (Gallistel & Gibbon, 2002). Acquisition of

CRs is also dependent on learning history in the presence of multiple cues in the environment (Williams, 1982). These CSs are said to compete for the limited amount of associative strength the US possesses (Siegel & Allan, 1996). A wide variety of associative models of learning were created to address *cue competition* effects (Wasserman & Miller, 1997).

Quantitative models of conditioning possess the ability to make clear predictions of behavioral phenomena (Vogel, Castro, & Saavedra, 2004). One of the most influential models of associative learning is the Rescorla-Wagner (RW) model (Rescorla & Wagner, 1972). Over the last few decades, the RW model has been widely applied to areas in psychology reaching far beyond its original database in animal learning (Miller, Barnet, & Grahame, 1995; Siegel & Allan, 1996). This model is able to predict most instances of cue competition and offers an associative explanation for a variety of phenomena (Gallistel & Gibbon, 2002; Miller, Barnet, & Grahame, 1995; Wasserman & Miller, 1997).

#### The Rescorla-Wagner Model

The RW model accounts for a variety of excitatory and inhibitory phenomena (Rescorla & Wagner, 1972; Wagner & Rescorla, 1972). Its mechanisms describe changes in the



associative strength of a single CS or of multiple CSs presented in compound and paired with a US (Rescorla, 1972). It also illustrates which characteristics of cue information matter most in conditioning (Rescorla, 1972). Below is the Rescorla-Wagner equation:

$$\Delta V_A = \alpha \beta (\lambda - \underline{V})$$

The change in associative strength ( $\Delta V_A$ ) of a cue  $CS_A$  is a function of two learning rate parameters: the intensity or saliency of the CS ( $\alpha$ ) and the intensity of the US ( $\beta$ ). The product of both parameters, ( $\alpha \beta$ ), is multiplied by the error term. The error term ( $\lambda - \underline{V}$ ) represents the difference between the theoretical maximum associative strength the US can support ( $\lambda$ ), referred to as the *asymptote*, and the total associative strength of all stimuli present ( $\underline{V}$ ).

### Blocking

Blocking is the most investigated and influential phenomenon in Pavlovian conditioning because it stands in stark contrast with the principle of simple contiguity (Holland, 1999; Holland & Gallagher, 1993; Kehoe & Macrae, 2002; McNally, Pigg, & Weidemann, 2004; Rudy, 1982). In fact, blocking is referred to as a "failure of contiguity" (Durlach, 1989). Kamin's (1968, 1969a, 1969b) research on the blocking effect represents one of the more recognized

instances of cue competition. Kamin found that preconditioning a cue A with reinforcement (A+) before reinforcing A in compound with a novel cue X (AX+) determines the amount of associative strength which can be conditioned to the new X cue (see Rescorla & Wagner, 1972). Since A and X are competing for associative strength supported by the given US, the learning history with A reduces the ability of X, despite its positive relation to the US, to gain associative strength when reinforced in the AX compound. In Kamin's (1968) terms, if a US is not "surprising," the CS-US association will not be formed. Blocking to X occurs because it is redundant; it does not provide any information beyond what is already supplied by A (Kamin, 1968). Kamin (1969b) suggests that the amount of blocking to X is determined by the characteristics of prior conditioning to A, and of A itself. Strength of conditioning during Pre-Training can be varied by factors such as the number of A-US trials prior to AX+ training or the saliency of A (see Rescorla & Wagner, 1972). Increasing the number of A+ trials before AX+ training, for example, should result in increased blocking of X.

Kamin's (1968) assessment of the blocking phenomenon, is the following; if the "to-be-conditioned response is

less than asymptotic...it can be conditioned" (p. 27). This suggestion, that the amount of conditioning is in some way affected by the maximum learning to a particular US and the associative strength of all stimuli present, shaped the error term of the Rescorla Wagner model ( $\lambda - \underline{V}$ ; Rescorla & Wagner, 1972; Wagner & Rescorla, 1972). This competitive learning rule was developed as a direct challenge to the principle of simple contiguity (Vogel, Castro, & Saavedra, 2004), and can easily account for the blocking effect. Because of the initial A+ conditioning, the RW error term ( $\lambda - \underline{V}$ ) approaches zero. Therefore, on the compound AX+ trials the RW equation governing  $\Delta V_X$  would predict that little if any associated strength could be gained by X (i.e., blocking).

Unblocking With an Increased US. In the previous example, "redundant" stimulus X was blocked due to the preconditioning of A prior to the compound reinforced trials (AX+). One way to *unblock* X, is to use a US magnitude on the AX+ conditioning trials that is greater than of the US used during A+ training (i.e., AX++; Kamin, 1969; Rescorla & Wagner, 1972). Using a more intense US on the AX+ trials theoretically increases the value of  $\lambda$ , the asymptote of conditioning supportable by the more intense US. Hence, despite the initial value of  $\underline{V}$  remaining the

same due to the prior A+ conditioning, the error term  $(\lambda - \underline{V})$  is larger. Multiplying through the equation using a larger error term and a larger  $\beta$  (more intense US) results in increases in  $\Delta V_x$  (unblocking).

### Cue Competition and Attraction

Early learning research posited that for conditioning to occur, the CS must be presented in temporal contiguity with a US. The Byrne-Clore attraction theory (Byrne, 1971; Clore & Byrne, 1974) can be termed "first generation" research because it is based on simple contiguity between the CS (stranger) and US (attitudinal agreement). From what is now assumed and known about associative learning (i.e., blocking), CS-US pairings alone are not sufficient for associations to form.

A "second generation" attraction model developed by Cramer, Weiss, Steigleder and Balling (1985) is more powerful than the first generation "simple contiguity" models because it is able to address contextual phenomena such as blocking and unblocking. Using the RW model to guide their study of attraction, Cramer et al. (1985) developed the reinforcement-context theory.

Their attraction equation is a social analogue to the RW equation:

$$\Delta V_A = \alpha_A \beta_{\text{agreement}} (\lambda - \underline{V})$$

The change in total attractiveness ( $\Delta V_A$ ) of a social stimulus (Person A) is a function of two learning rate parameters: the saliency of the social stimulus ( $\alpha_A$ ) and the strength of social reinforcement such as attitudinal agreement ( $\beta_{\text{agreement}}$ ). The product of both parameters, ( $\alpha_A \beta_{\text{agreement}}$ ), is multiplied by the error term. The error term ( $\lambda - \underline{V}$ ) represents the difference between the *theoretical asymptote*, or maximum attraction strength supported by the social reinforcer ( $\lambda$ ), and the total attraction strength of all social stimuli present during acquisition ( $\underline{V}$ ).

In two experiments Cramer et al. (1985) demonstrated the acquisition of attraction to Person A and the blocking of attraction to Person X. Acquisition of attraction to a single social stimulus, Person A, was an increasing function of the number of times Person A agreed (A+ trials) with the research participant. If another person, X, agreed with the participant in the context of the attractive Person A (AX+ trials), attraction to Person X was blocked. Blocking of attraction to Person X occurred because Person A acquired a substantial amount of the attraction strength from the agreement on the A+ trials. Hence, the value of ( $\lambda - \underline{V}$ ) for determining  $\Delta V_x$  on the AX+ trials was substantially reduced because of the strong

contribution  $\Delta V_A$  makes to  $\underline{V}$ . Put another way, increases in  $\Delta V_x$  will be blocked if Person A already possesses most of the total attraction strength ( $\underline{V}$ ). Due to Person A's Pre-Training with agreement (A+) or attraction conditioning, Person X is "redundant" and cannot readily compete for attraction strength (see Kamin, 1968).

In theory, Person X can compete for attraction strength if X is paired with a stronger level of agreement when in compound with Person A (AX++) than Person A was paired with on the initial attraction trials (A+). Unblocking is predicted by the attraction equation's error term. An increase in the level of agreement on the compound conditioning trials (AX++) would produce a larger error term because of an increase in the theoretical asymptote ( $\lambda$ ) supportable by the social reinforcer. With more attraction strength available to Person A and Person X, as indicated by a greater discrepancy between  $\lambda - \underline{V}$ , this allows both Person A and X to acquire attraction strength. Person X, in particular, is expected to be unblocked or evoke more attraction than a proper control.

#### Statement of the Problem

Conditioning theory and research have contributed substantially to a more complete understanding of a

variety of social processes including attitude formation, consumer behavior, and interpersonal attraction. The goal of this thesis was to illuminate further another frequently investigated social process, voting behavior. This research developed and tested social analogs of several learning variables, including trials: the number of times a candidate agreed with the participant, and reward magnitude or intensity: the percentage of attitudinal agreement, assumed to be vital to an understanding of cue competition effects such as blocking and unblocking in voting behavior.

To date, studies manipulating social analogs of familiar social processes have done so using between-subjects designs. In this research a more statistically powerful within-subjects design was used. Another advantage of using a within-subjects design is the increase in ecological validity such a design affords. In contrast to a between-subjects design, research participants in within-subjects designs are exposed to all of the voting behavior variables (i.e., candidates, political positions) and procedural manipulations.

In order to test the hypotheses, several social variables were assumed to function in a manner analogous to familiar conditioning variables. These social variables

were manipulated in the context of an evaluation of new voting software which electronically introduced participants to candidates running for political office. Corresponding to a conditioned stimulus, for example, was a political candidate (CS analog). Pairing the CS analog with an unconditioned stimulus (US) analog such as feedback revealing attitudinal agreement between candidate and participant on political issues corresponded to a CS-US conditioning trial. Corresponding to a reinforced compound CS trial was a trial in which two candidates were jointly paired with the US analog. In conditioning, the magnitude or intensity of a US can be manipulated by the amount of food or level of shock paired with a CS. Manipulating the percentage of agreement on political issues that a candidate shares with the participant on a given conditioning trial corresponded to a US magnitude or intensity manipulation. A measure of the participant's likelihood of voting for a candidate corresponded to a conditioned response (CR) analog. The hypotheses described below were testable by manipulating the social analogs in specific ways.



## Hypotheses

### Acquisition of Voting Behavior

In conditioning, CR acquisition is an increasing function of the number of times a CS is paired with a US (Pavlov, 1927). Therefore, the likelihood that a participant will vote for a political candidate (CR analog) is an increasing function of the number of times a candidate (See Table 2, Candidates A and C, Vote 1) is paired with attitudinal agreement feedback (US analog). The acquisition hypothesis represents a controlled experimental test of "momentum" and of the political similarity and voting relationship Quist and Crano (2003) discovered in their study of the 1972 Nixon and McGovern campaign for the presidency.

### Blocking of Voting Behavior

In conditioning, blocking (i.e., weaker CR responding) to a novel stimulus is observed when a CS compound containing the novel CS and a conditioned excitatory CS is reliably paired with a US (Aitken, Larkin, & Dickinson, 2000; Rescorla & Wagner, 1972). The blocking of voting behavior to a novel candidate (i.e., Candidate X, See Table 2, Vote 1) is predicted when a compound containing the novel candidate and a candidate that already elicits voting behavior (i.e., Candidate A)

is paired with a similar percentage of attitudinal agreement feedback (US analog). The blocking hypothesis also represents another test of "momentum." The first candidate (Candidate A) has, in theory, built "momentum" and since the novel candidate (Candidate X) has not, X is predicted to receive significantly less voter support (blocking) when compared to the control candidates G and H (see Table 2).

The following comparisons were planned to demonstrate the blocking of voting behavior. An effect of Candidate A's prior presentation upon Candidate X's subsequent approval can be illustrated by comparing Candidate X's mean voting likelihood to the mean voting likelihood for both controls, Candidate G and Candidate H (See Table 2, Vote 2). These candidates act as controls since they only appear in compound presentation during Stage 2; neither is expected to experience the decrease in voting likelihood caused by a blocking cue presented in Stage 1.

#### Unblocking of Voting Behavior.

Kamin (1968) argued that blocking to a novel CS occurred because the novel CS was "redundant" when reinforced in a compound containing another CS that reliably signals the upcoming US. However, unblocking is observed when the presence of a novel CS in a reinforced

compound signals a larger magnitude or more intense US than the US used in the initial CR acquisition conditioning. By analogy, the likelihood that a participant will vote for a novel candidate (Candidate I, see Table 2) will be unblocked when the presence of the novel candidate in a compound CS signals a higher percentage of attitudinal agreement than the percentage of agreement initially used in the acquisition of support to the other candidate (Candidate C) in the compound. The unblocking hypothesis represents another test of "momentum" because Candidate I was predicted to overcome Candidate C's "momentum" if he signals an increased percentage of agreement with the voter than Candidate C did in Stage 1.

The following comparisons were planned to demonstrate the unblocking of voting behavior. Candidate I's approval was expected to proceed unimpaired despite Candidate C's previous presentation in Stage 1. An unblocking effect caused by a higher percentage of attitude agreement can be demonstrated by comparing Candidate I's mean voting likelihood to the mean voting likelihood for both controls, candidates G and H (see Table 2, Vote 2). These candidates act as controls because they appear in compound during Stage 2 and signal the same percentage of attitude

similarity (60 % agreement) signaled by Candidate C in  
Stage 1.

## CHAPTER TWO

### METHODOLOGY

#### Introduction

##### Participants

Forty-four undergraduate volunteers (25 women and 19 men, mean age = 31.93 years), who participated in the 2004 presidential election participated in this study. Extra credit was provided for undergraduate psychology courses as an incentive for participation. All participants were treated in accordance with the ethical principles of psychologists and code of conduct (American Psychological Association, 1992).

##### Masking Task

The conditioning manipulations were masked by asking participants to help a local software company (MINUS Two) test their new political software. Statements to this end included the following. MINUS Two claims that their software can "introduce political candidates to participants in a fair and balanced manner." MINUS Two "collected all available public records and statements made by candidates running for political office over a six month primary election period." The software introduced political candidates by showing the participants to what

extent the candidates shared their political beliefs "with the speed of a computer." Before sitting at the computer, participants were asked to complete the Political Passion Inventory (PPI). Participants were led to believe that their PPI responses were electronically matched with the position stances of candidates running for political office. Participants were then asked to indicate the likelihood of voting for each candidate.

### Materials

The Political Passion Inventory (PPI) contained 60 items organized by differing political issues. The 10 issue sets included abortion, gun control, crime, national security, welfare, education, immigration, healthcare, social security, and drugs (see Appendix A). These items were adapted from Project Vote Smart's 2004 National Political Awareness Test (NPAT) available online at [http://www.vote-smart.org/program\\_npatforms\\_2004.php](http://www.vote-smart.org/program_npatforms_2004.php). Participants indicated their responses to the political statements by filling in the corresponding letter (A = strongly disagree with the statement to E = strongly agree with the statement) on a Scantron form. Data collected from the PPI were not of primary interest, but rather served to maintain the validity of the masking task.

## Apparatus

The experimental stimuli were presented on a personal computer (NEC Powermate 8100), a 38.1 cm color monitor (NEC MultiSync A700) and a standard keyboard (Dell QuietKey). The computers were loaded with the software program E-prime (Version 1.1, Psychological Software Tools, Inc.). This software controlled the presentation of instructions, visual stimuli, and measurement of the participants' responses. During the course of the experiment, participants' responses to the CR analog evaluation measure were collected using the keyboard. Stickers were placed on all keyboard keys to isolate those keys that were used by participants. The top row of numerical keys had stickers that ranged from -4 on the 1 key to +4 on the 9 key. All remaining keys had a white sticker placed over the letter or number.

## Conditioned Stimulus (CS) Analogs

E-prime presented photographs of male political candidates, either individually or two at a time, to each participant. Color photographs of candidates, downloaded from the websites of various Northern Ireland political councils (i.e., <http://www.ark.ac.uk/elections/gparties.htm>) served as CS analogs. The candidates were

photographed from the chest up wearing a shirt, tie, and jacket (see Appendix B).

In order to control pre-experiment evaluation differences, only men that were rated as "average" in physical attractiveness were used in the study. In a pilot study, male and female participants rated 50 "political candidates" on their physical attractiveness. Out of the 50 candidates, nine men were chosen for the study. These men had been rated as "average in attractiveness" on a 9-point scale with mean ratings ranging from 4 to 5.

#### Unconditioned Stimulus (US) Analogs

Participants were presented with a screen consisting of graphic feedback of the political candidates' percentage of agreement with them on a particular issue set from the PPI. When the CS analog was followed by the US analog representing a high percentage of agreement (e.g., 60% agreement) this corresponded to a CS+ trial (see Appendix B). When the CS analog was followed by the US analog representing a higher percentage of agreement (e.g., 90% agreement), this corresponded to a CS++ trial. When the CS analog was followed by a screen indicating "No public record was found," this corresponded to a nonreinforced CS- trial. The bar graph was labeled from 0 to 100 on the Y-axis. This graph included a dark green,



two-dimensional bar that extended from the zero point of the graph's Y-axis to approximately the number 60 or 90 for the CS+, and CS++ trials, respectively. Four different graphs with green bars that range from 57 to 63, or 87 to 93 respectively, were used to represent feedback reflective of realistic computer calculations.

#### Conditioned Response (CR) Analog

At specified times during the experiment, participants were asked to evaluate some or all of the candidates. This evaluation constituted the CR analog. Participants made their evaluations using a rating scale provided on the computer screen and by pressing one number on the keyboard. The participants were asked to indicate the likelihood of voting or not voting for a particular candidate. The response scale was a 9-point Likert-type scale anchored with -4 = "Extremely unlikely to vote for" and +4 = "Extremely likely to vote for" (see Appendix C).

#### Experimental Design

A within-subjects design with two conditioning stages and eight different cue conditions (A+, C+, D++, B-, BK-, AX+, GH+, and CI++) was adopted to test the hypotheses. The first four cue conditions (A+, C+, D, and B-) were manipulated in Stage 1 to test the acquisition hypothesis,

and the four compound cue conditions (BK-, AX+, GH+, and CI++) were manipulated in Stage 2 to test the blocking and unblocking hypotheses. All stimuli were presented using seven experimental versions (see Table 1).

Table 1. Overview of Experimental Versions

	<u>Version</u>						
	1	2	3	4	5	6	7
<u>Cue</u>							
A	1	2	3	4	5	6	7
C	2	3	4	5	6	7	1
D	a	a	a	a	a	a	a
B	3	4	5	6	7	1	2
BK	3,b b,3	4,b b,4	5,b b,5	6,b b,6	7,b b,7	1,b b,1	2,b b,2
AX	1,4 4,1	2,5 5,2	3,6 6,3	4,7 7,4	5,1 1,5	6,2 2,6	7,3 3,7
GH	5,6 6,5	6,7 7,6	7,1 1,7	1,2 2,1	2,3 3,2	3,4 4,3	4,5 5,4
CI	2,7 7,2	3,1 1,3	4,2 2,4	5,3 3,5	6,4 4,6	7,5 5,7	1,6 6,1

Note. Each candidate photograph is assigned an arbitrary number or letter. The seven target candidates are assigned numbers (1 to 7). The two filler candidates are assigned letters (a, b).

The versions were designed to rotate seven target candidate photographs (1 to 7) through each of the critical contingencies across the two training stages (see

Table 2). The first stage consisted of six training trials for each of three cues (A+, C+, B-) and one filler cue (D++). The D++ cue was a filler indicating that the candidate's percentage of agreement could vary. The second training stage included three critical compound CSs (AX+, GH+, CI++) and one filler (BK-). The candidate positions in each critical compound were counterbalanced across the six trials.

Table 2. Experimental Design and Presentation of the Contingencies

<u>Training Schedule</u>					
	Pre-Training Vote	Stage 1	Vote 1	Stage 2	Vote 2
<u>Contingency</u>					
Acquisition	A	A+	A		A
Acquisition	C	C+	C		C
Filler	D	D++	D		D
Control	B	B-		B	B
Filler	K			BK-	K
Blocking	X			AX+	X
Blocking&	G				G
Unblocking control	H			GH+	H
Unblocking	I			CI++	I

Note. Treatment cues: A, C. Target cues: A, B, C, G, H, I, X. Filler cues: D, K. + = 60 % agreement in political beliefs, ++ = 90% agreement in political beliefs, - = "No public record was found."

## Procedure

All participants were asked to read and sign an informed consent, and then to complete a general demographics sheet to verify participating in the 2004 presidential election. Participants were randomly assigned to one of seven versions of the experiment.

Participants were tested in a classroom with a set of computer terminals. First, participants were seated at desks to complete the Political Passion Inventory. After completing the PPI using a Scantron, the experimenter left the room to ostensibly run the Scantron through a reader in the adjacent lab. The experimenter returned to the classroom and asked the participants whether they had any questions. The experimenter then escorted the participants to seats in front of the personal computers. Instructions were presented on the computer screen (see Appendix D for the complete onscreen instructions). After participants finished reading the preliminary instructions, the experimenter asked if there were any questions and then reviewed key elements of the experiment to avoid any confusion.

### Pre-Training Vote

Before beginning the training trials, participants were asked to provide a Pre-Training vote for each

candidate. Photographs of the nine candidates appearing in the study (A, B, C, D, G, H, I, K, and X) were presented in random order to each participant and rated using a 9-point CR scale (see Appendix C). Each candidate appeared on the upper half of the screen while the CR scale appeared at the bottom of the screen. Participants evaluated each candidate by pressing one of nine keys labeled -4 to +4. Each candidate appeared for 9 s and was followed by a 7 s intercandidate interval.

After completing the Pre-Training vote, participants read additional instructions indicating that MINUS Two wants them to answer two questions about each candidate using the feedback about how much the candidate shares their political attitudes (see Appendix D for the onscreen instructions). After reading the instructions, participants were asked to press the space bar to move to Stage 1.

### Stage 1 Training Trials

The goal of Stage 1 was to condition voting likelihood to a single candidate by pairing the candidate with political attitudes similar to the participant (see Appendix B). Participants were presented with 24 training trials, six A+ trials, six C+ trials, six D++ trials, and six B- trials. On the A+ and C+ trials a candidate was

paired with feedback indicating the candidates and the participant's attitudes on an issue agreed approximately 60 percent. On the D++ trials the feedback indicated approximately 90 percent agreement. On the nonreinforced B- trials the feedback indicated "No public record was found."

Each candidate's photograph appeared on the left side of the screen, with the 9-point CR scale presented below (See Appendix C). The CS analogs and the CR scale appeared on the screen for 9 s, during which time the participant recorded his/her response by pressing a key ranging from -4 to +4 to indicate his/her likelihood of voting or not voting for each candidate. After 9 s elapsed, the CR scale was removed as the US analog simultaneously appeared for 9 s adjacent to the CS-analog. The US analog appeared centered on the screen to the right of the candidate. The CS analog-US analog presentation was followed by a 7 s intertrial interval (ITI). Conceptually, this procedure represents one complete analog of a CS-US delay conditioning trial (Macintosh, 1974).

#### Vote 1

The instructions and the 9-point CR scale for Vote 1 are similar to those used in the Pre-Training Vote (see Appendix D for the onscreen instructions). The four

candidates that appeared in Stage 1 were randomly presented to the participants, and the participants were asked to indicate their likelihood of voting for or not voting for each candidate. After completing Vote 1 participants read an additional set of instructions (see Appendix D for the onscreen instructions) that informed them that they would again view a series of photographs of candidates and feedback regarding the percentage of political attitudes the candidate shares with them. After participants press the space bar they were alerted that Stage 2 was set to begin.

#### Stage 2 Training Trials

Stage 2 trials included compound CS-analog presentations. Stage 2 training totaled 24 trials with four groups of candidates appearing six times each (see Table 2). The A+ candidate (for a particular version) continued in Stage 2 and was presented in compound with a new candidate, X, and was paired with the US-analog (AX+).

On the compound CS-analog trials, photographs of two candidates were shown on the screen with the 9-point CR scale. The two candidates were presented next to each other, centered on the left side of the screen for 9 s with the CR scale directly below. Again, during the presentation participants registered their response as

described for Stage 1. After responding to the CR scale, the compound trials followed the procedure described for the Stage 1 single CS-analog trials. On the reinforced trials the compound CS analogs were paired with the US analog indicating a percentage of agreement between the candidate and the participant. On the AX+ and GH+ trials the candidates were paired with feedback indicating approximately 60 percent agreement between the candidates and the participant on an issue set. On the CI++ trials the percentage of agreement on an issue set was approximately 90 percent. On the non-reinforced BK- trials two candidates were paired with feedback indicating that "No public record was found" (see Table 2). This procedure is analogous to compound stimulus delay conditioning.

#### Vote 2

At the end of the Stage 2 Training Trials participants were asked to rate six target candidates (A, C, G, H, I, and X) using the 9-point CR scale (see Appendix D for full onscreen instructions). The procedure for Vote 2 followed the same format as that described for Vote 1. After completing the final phase of the experiment participants received a debriefing statement, had any questions answered, were given their extra credit slips, thanked, and dismissed.



## Statistical Analyses

### Assumptions

Before the primary analyses were conducted statistical assumptions were evaluated to ensure the conclusions drawn from the analysis were valid. The first step of data screening included identifying missing data. Second, the data were examined for outliers using a standard criterion of 3.3 standard deviations above or below the mean. If a score exceeds this criterion it was considered an outlier and excluded from all analyses. If any data were excluded or missing, the mean substitution method was adopted to complete the data set.

### Pre-Training Vote

Participants responded to each candidate using the 9-point CR scale prior to the Stage 1 conditioning trials. These initial ratings were used to ensure that the conditioning effects were not compromised by *a priori* differences among the candidates. A repeated measures analysis of variance (ANOVA) was conducted to ensure that, in terms of the likelihood of voting for each candidate, no significant differences among the nine candidates existed.

### Acquisition

Participants' responses to the 9-point CR scale, which were presented on the Stage 1 CS-US presentations were used to examine the acquisition of voting behavior. Learning curves were used to display changes in voting likelihood over the course of Stage 1 training. To determine whether these learning curves demonstrate statistically significant changes in voting behavior, the participants' trial-by-trial responses for a particular candidate were subjected to a repeated measures (ANOVA). To test further the acquisition hypothesis, the terminal voting likelihood data obtained from Vote 1, was compared for Candidates A, C, and B using planned paired-samples t-tests. To determine whether reinforced trials had a significant influence on likelihood of voting, Candidates A, C, and the nonreinforced control B's voting likelihood ratings were compared.

### Blocking

To test the blocking hypothesis the voting likelihood data obtained from Vote 2 was compared for Candidates X, G, and H using planned paired-samples t-tests. Candidate X's voting likelihood was expected to be less than Candidate G's and Candidate H's.

### Unblocking

To test the unblocking hypothesis, the voting likelihood data from Vote 2 was compared for Candidates I, G, and H using planned paired-samples t-tests. Candidate I's voting likelihood was expected to be greater than Candidate G's and H's.

## CHAPTER THREE

### RESULTS

#### Assumptions

The mean substitution method was used to replace missing data in the Pre-Training Vote and trial-by-trial ratings. No outliers, as defined as scores 3.3 standard deviations above or below the mean, were observed in the data.

#### Pre-Training Vote

A repeated measures ANOVA revealed no significant differences in voting likelihood among the nine candidates prior to training,  $F(8, 344) = 1.22, p > .05$ . Therefore, the subsequent voting effects were attributed to the training procedures.

#### Acquisition (Stage 1 and Vote 1)

Figure 1 demonstrates, over six trials, increases in voting likelihood for the reinforced candidates A and C, while Candidate B, the control, decreases in voting likelihood across the Stage 1 trials. The curves resemble the corresponding learning curves widely found in the learning literature. These learning represent statistically significant changes in voting behavior over six trials for each candidate as evidenced by Analysis of

Variance (ANOVA) procedures for repeated measures. For Candidate A,  $F(5, 175) = 5.11, p < .05$ ; Candidate B,  $F(5, 175) = 4.40, p < .05$ ; Candidate C,  $F(5, 175) = 2.86, p < .05$ . Simply, Figure 1 supports the following practical outcome. When participants gained more and more knowledge that a candidate continued to agree with their political attitudes, they were more likely to vote for that candidate.

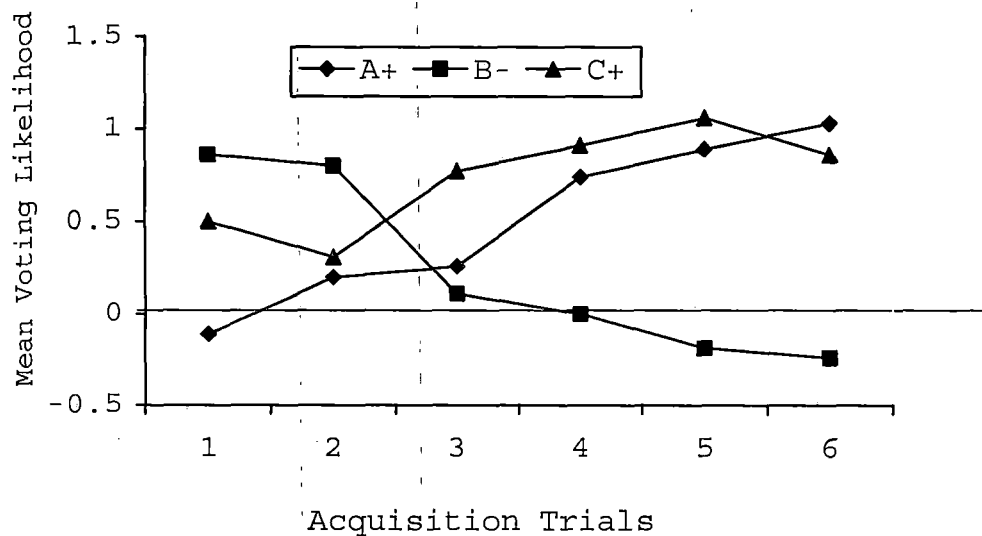


Figure 1. Mean Voting Likelihood for A, B, & C Over Six Trials in Stage 1

Note. Candidates were paired with agreement as follows:  
 Candidate A+ = 60 % agreement in political beliefs,  
 Candidate B- = "No public record was found,"  
 Candidate C+ = 60 % agreement in political beliefs.

A paired-samples t-test comparing terminal Vote 1 means, after the 6 Stage 1 trials, revealed the predicted acquisition effect. Candidates A and C who were both paired with "60% agreement" with the participant did not differ significantly in regard to mean voting likelihood ( $M_A = -.19$ ,  $M_C = .17$ ),  $t(43) = -.66$ ,  $p > .05$ . When compared to Candidate B, the control (i.e., "No public record was found"), participants assigned a significantly greater mean voting likelihood to Candidate A who was paired with "60% agreement" ( $M_A = -.19$ ,  $M_B = -1.41$ ),  $t(43) = 2.17$ ,  $p < .05$ . Similarly, when compared to Candidate B who was paired with "No public record was found," participants assigned a significantly greater mean voting likelihood to Candidate C who was paired with "60% agreement" ( $M_C = .17$ ,  $M_B = -1.41$ ),  $t(43) = 2.76$ ,  $p < .05$ . All the relevant comparisons are included in Table 3.

Table 3. Mean Voting Likelihood for Target Candidates at  
Vote 1

Candidate	Mean	Standard Deviation	Sig.
A	-.19	2.40	
C	.17	2.43	$p > .05$
A	-.19	2.40	
B	-1.41	2.49	$p < .05$
C	.17	2.43	
B	-1.41	2.49	$p < .05$

Note. Candidates were paired with agreement as follows:  
Candidate A+ = 60 % agreement in political beliefs,  
Candidate B- = "No public record was found,"  
Candidate C+ = 60 % agreement in political beliefs.

#### Blocking (Vote 2)

No significant difference in voting likelihood for the two control cues G and H was observed for Vote 2,  $M_G = -.80$ , and  $M_H = -.43$ , respectively,  $t(43) = -1.27$ ,  $p > .05$ . As a result, proper tests of the blocking hypothesis were performed. A test of the blocking hypothesis, however, did not reveal the lower voting likelihood for the blocked cue X ( $M_X = -.55$ ) compared to the control cues G ( $M_G = -.80$ ;  $t(43) = .690$ ,  $p > .05$ ) and H ( $M_H = -.43$ ;  $t(43) = -.311$ ,  $p > .05$ ).

### Unblocking (Vote 2)

In the planned comparison to test the unblocking hypothesis, a greater voting likelihood for the unblocked cue I was observed,  $M_I = 1.77$ , compared to the control cues G ( $M_G = -.80$ ),  $t(43) = 5.31$ ,  $p < .05$  and H ( $M_H = -.43$ ),  $t(43) = 4.38$ ,  $p < .05$ . See Table 4 for the Stage 2 candidates and their respective mean voting likelihood for Vote 2.

Table 4. Mean Voting Likelihood for Target Candidates at Vote 2

Candidate	Mean	Standard Deviation	Sig.
G	-.80	2.39	
H	-.43	2.34	$p > .05$
X	-.55	2.54	
G	-.80	2.39	$p > .05$
X	-.55	2.54	
H	-.43	2.34	$p > .05$
I	1.77	2.12	
G	-.80	2.39	$p < .05$
I	1.77	2.12	
H	-.43	2.34	$p < .05$

Note. G,H = Controls. X vs. G; X vs. H = Blocking comparison.  
I vs. G; I vs. H = Unblocking comparison.



## CHAPTER FOUR

### DISCUSSION

#### Summary and Findings

Learning theory has been successfully applied to a number of areas in social psychology including attitude formation and change, consumer learning, and interpersonal attraction. Previous research, for example, has applied a classical conditioning framework with varying degrees of sophistication. These theoretical refinements varied greatly in the literature from elementary pairings of a CS and a US and simple contiguity (e.g., Byrne, 1971; Clore & Byrne, 1974; Gorn, 1982) to integrations of the Rescorla-Wagner model (Rescorla & Wagner, 1972; Wagner & Rescorla, 1972) in the investigation of cue competition effects in interpersonal attraction (e.g., Cramer et al., 1985). The goal of this thesis was to illuminate another social process, momentum in voting behavior, using social analogs which allowed the test of specific hypotheses regarding cue competition phenomena such as the blocking and unblocking of voting behavior.

In this research, the masking task was for participants to help a local software company test their

new political software. Participants received all of the conditioning procedures for the acquisition, blocking, and unblocking of voting behavior under the guise of this masking task. The experimental procedure manipulated political candidates as conditioned stimuli and graphic feedback about the candidates' percentage of agreement with the participant on a particular issue set as unconditioned stimuli. Each participant responded to the conditioning procedures by indicating the likelihood of voting for each political candidate.

#### Acquisition of Voting Behavior Hypothesis

In conditioning CR acquisition is an increasing function of the number of times a CS is paired with a US (Pavlov, 1927). Therefore, in this study, it was predicted that the likelihood that a participant will vote for a political candidate (CR analog) would be an increasing function of the number of times a candidate was paired with attitudinal agreement (US analog).

The acquisition hypothesis was drawn to meet two goals. First, acquisition would be notable from a human conditioning standpoint. To date, this research is just the second instance of conditioning using social stimuli utilizing a within-subjects design (see Lipinski, 2005). Second, the construction of a simulated primary using the

conditioning manipulations represents a controlled experimental test of political *momentum* and serves as a laboratory-based extension of the political similarity and voting relationship discovered by Quist and Crano (2003).

The results revealed support for the acquisition of voting behavior. Over six trials increases in voting likelihood were found for candidates A and C who were paired with feedback indicating that the candidate's and the participant's attitudes agreed approximately 60 percent. In contrast, a sharp decrease in voting likelihood across Stage 1 was found for Candidate B, the nonreinforced control.

Voting behavior was modifiable across six Stage 1 trials. As predicted, the likelihood of voting for a political candidate was an increasing function of the number of times a candidate agreed with the participant. Rather than remaining at a constant level of support, the results suggest that support, at least in terms of voting likelihood, will increase as evidence that a candidate continues to agree with the voter increases. The candidate who did not provide information about shared attitudes did not fare well. The absence of attitude information did not produce participant neutrality. The participant's reported

likelihood of voting for the control candidate decreased significantly across Stage 1.

Effects not specifically predicted are also of interest. On the D++ trials, for example, the attitudinal agreement feedback indicated approximately 90 percent agreement between candidate and participant. As might be expected, Candidate D did receive the highest voting likelihood after the six Stage 1 trials. At Vote 1, Candidate D's mean voting likelihood was 2.12, higher than candidates A and C. From a learning perspective such an outcome is consistent with a magnitude of social reinforcement effect. This outcome should be interpreted with caution because Candidate D was a filler and was not controlled by rotating all of the target male photographs.

#### Blocking of Voting Behavior Hypothesis

In conditioning, blocking (i.e., weaker CR responding) to a novel stimulus is observed when a CS compound containing the novel CS and a conditioned excitatory CS is reliably paired with a US (Aitken et al., 2000; Rescorla & Wagner, 1972). In this study, the blocking of voting behavior to a novel candidate (i.e., Candidate X) was predicted when a compound containing the novel candidate and a candidate that already elicited strong voting behavior (i.e., Candidate A) was paired with

a similar percentage of attitudinal agreement feedback (US analog). The strength of the blocking effect is determined by the acquisition of voting likelihood to Candidate A.

The blocking and unblocking hypotheses for voting behavior were intended to meet two goals. First, testing and finding cue competition effects in the general area of liking or evaluative conditioning is a challenge (see DeHouwer, Thomas, & Baeyens, 2001). In our research group, cue competition effects in attraction have been found (Cramer et al., 1985) but significant theoretical issues and procedural challenges such as the use of within-subjects designs remain. DeHouwer et al. (2001) acknowledge that "there are currently no data about the role of cue competition in [human evaluative conditioning]" (p. 866). The present research sought to provide such data. Secondly, the blocking and unblocking hypotheses also represented another test of *momentum*. In terms of blocking, the first candidate (Candidate A) has, in theory, built *momentum* and since the novel candidate (Candidate X) has not, X is predicted to receive significantly less voter support (blocking) despite signaling agreement with the participant when compared to the control candidates G and H.

The results, however, did not lend statistical support for the blocking of voting behavior hypothesis. A significantly lower voting likelihood for the blocked cue (Candidate X) was not observed when compared to the control cues (Candidates G and H). One explanation for the lack of evidence for blocking may lie with the low percentage of agreement signaled by Candidate A in Stage 1. The modest acquisition to Candidate A would be expected to reduce blocking to Candidate X in Stage 2. The effect of A's low percentage of agreement may have been magnified by Candidate D's high percentage of agreement (90%) in Stage 1. Perhaps Candidate A was unable to build enough momentum in Stage 1 to block the newcomer to Stage 2, Candidate X. However, as mentioned before, because Candidate D was a filler participant response to this one male photograph should be interpreted with caution.

Some data suggest a trend toward blocking on a practical, although not theoretical, level. From a mean change perspective, the observed voting likelihood did move in the predicted direction when responses to Candidates A and X are compared. The "blocker" cue (A+) did increase in voting likelihood from the Pre-Training Vote to Vote 2 ( $M_{\text{change A}} = +.68$ ). The "blocked cue" (X+)

despite being paired with agreement did receive a decreased voting likelihood from the Pre-Training Vote to Vote 2 ( $M_{\text{change X}} = -.12$ ). Firm conclusions cannot be made using this within compound comparison because the blocking effect is predicted comparing X to two control candidates that were presented in compound and reinforced. The control candidates (i.e., G and H) demonstrated modest decreases ( $M_{\text{change G}} = -.25$ ) and increases ( $M_{\text{change H}} = +.26$ ) in voting likelihood from the Pre-Training Vote to Vote 2. Nevertheless, on a practical political level, Candidate X did not benefit relative to Candidate A despite sharing attitudes with the participant.

#### Unblocking of Voting Behavior Hypothesis

In conditioning, unblocking is observed when the presence of a novel CS in a reinforced compound signals a larger magnitude or more intense US than the US used in the initial CR acquisition conditioning. Consequently, in this thesis, the likelihood that a participant would vote for a novel candidate (Candidate I) was expected to be unblocked when the presence of the novel candidate in a compound CS (Candidates C and I) signaled a higher percentage of attitudinal agreement than the percentage of agreement initially used in the acquisition of support to the other candidate (Candidate C) in the compound.

The observed results lend robust statistical support for the unblocking hypothesis. That is, a greater voting likelihood for the unblocked cue I was observed in comparison to the control cues G and H. From a human learning perspective, demonstrating unblocking is encouraging considering the state of the literature in evaluative conditioning. From a political psychology perspective, one goal of this research was to test *momentum* and some may acknowledge that comparing the likelihood of voting for a target candidate (Candidate I) to those who function as learning controls (Candidate G and H) may be ecologically questionable.

Taking an applied political focus, examining the data in terms of a simulated primary election, the findings bear an uncanny resemblance to past history. In this work, the filler cue Candidate D was the only candidate with momentum. As the front runner, he built voting likelihood from the Pre-Training Vote ( $M_D = -.13$ ) to Vote 1 ( $M_D = 2.12$ ) with a slight drop in voting likelihood at Vote 2 ( $M_D = 1.68$ ). Candidate I entered the "primary" in Stage 2 in compound with Candidate C. At Vote 2, the newcomer Candidate I ( $M_I = 1.77$ ) surpassed Candidate C ( $M_C = 1.43$ ) and edged out the momentum Candidate D ( $M_D = 1.68$ ) by a proverbial nose. These findings should be



interpreted with caution as they might indicate that possibility of momentum being a double-edged force. Theoretically, this force could be utilized at the start of primaries by taking action to become the front-runner or by breaking from the pack in the late primaries. In our laboratory findings, the front-runner Candidate D and newcomer Candidate I are nearly equal in voting likelihood, but our political history would indicate the more preferable position. That is, a candidate must strategize and take action to become the front-runner. Front-runners enjoy a strong advantage as McGovern and Carter are recognized as the only momentum-driven candidates in our history (Mayer, 2004).

#### Future Directions

In this thesis, the acquisition and unblocking of voting behavior were observed. The blocking of voting behavior was not found. We are encouraged by such a pattern of findings. Only one other study has demonstrated acquisition effects in attraction using a within-subjects design (see Lipinski, 2005). Future studies of cue competition effects in voting behavior would benefit by focusing on several factors. First, the social analogs have been shown to stimulate voting behavior with some

success in this thesis. Pairing the CS analog (a political candidate) with an unconditioned stimulus (US) analog feedback which indicates the percentage of attitudinal agreement between candidate and participant (e.g., 90%, 60%) does result in modifications in voting likelihood. Another US magnitude analog could be created by having participants list their top five political issues in order of importance. The US magnitude manipulation could, in theory, be the relative ranking of these key issues. The US+, for example, could be the third, fourth, and fifth issues as selected by the participants. The US++ could be the first and second issues. If this suggestion for a different US analog was used, researchers could reduce the number of trials. In this thesis, a questionnaire with ten issue sets was adequate in masking the conditioning trials. Nonetheless, participants may be more responsive when subjected to a less demanding conditioning procedure using fewer trials. The use of topic interest as a US magnitude manipulation may also provide valuable procedural and theoretical advantages.

The data suggested that candidates that received the highest voting likelihood were in 90% agreement with participants. That is, for voters to be motivated to offer their strongest support to a candidate, the candidate

needed to demonstrate 90% political agreement with them. The 60% level of agreement appeared too low to stimulate strong voting behavior. Hence, blocking was not observed. This poses methodological and theoretical concerns.

If a future study were conducted, the base reinforcement level may need to be 90% agreement in order to generate blocking to a redundant candidate. However, with such a high level of initial agreement ceiling effects may occur in the first stage of training affecting the observation of the unblocking effect. We seem to have a Catch 22. A solution is possible, however, in holding the percentage of agreement constant and manipulating the topic interest. In order to generate strong acquisition and the blocking effect in voting behavior the percentage of agreement could be set at 90 percent. The 90 percent agreement, however, could be on topics of "low interest." In order to test for unblocking of voting behavior a novel candidate could be presented in a social compound with an attractive candidate and paired with 90 percent agreement on topics of "high interest." The novel candidate is not redundant and voting behavior should be unblocked.

## Conclusions

The results of this thesis did not support all the hypothesized cue competition phenomena. However, the demonstration of acquisition and unblocking is encouraging for future research. This thesis also provides another instance in support of the continued application of classical conditioning principles, procedures, and phenomena in social psychology, and perhaps now even in the area of political psychology.

A shift of focus may be resisted in political science, but employing the conditioning approach appears quite appropriate for studying a unique political event, the presidential primaries. Political scientists often endeavor to study the academic question of momentum in a primary season using archival data. It is our hope that political psychologists with an acknowledgement of the power of learning theory may perhaps become encouraged to study momentum as well as other voting phenomena in the laboratory using familiar conditioning procedures.

Similarities between learning variables and the presidential primaries include the number of cues or candidates involved. The occurrence of multiple cues is of interest when examining cue competition phenomena such as blocking and unblocking. Learning theory, it can be

argued, can be extended to circumstances in which multiple candidates are vying for their party's nomination in the presidential primaries.

In this experiment, participants indicated that they would be more likely to vote for candidates who held political attitudes similar to their own. The candidate participants did not learn much about with regard to issue stances did not receive an increase in voting likelihood. In fact, that candidate's support decreased reliably. Such findings are consistent with archival political research that drew upon an attitude-similarity and voter support relationship (see McPeck & Gross, 1975; Quist & Crano, 2003).

The current research represents a notable extension of attitude similarity and voting likelihood studies in political psychology. From a human conditioning perspective, finding cue competition effects using a within-subjects design is arguably more difficult because of the more demanding and complex conditioning procedures participants must endure. To examine analogs of a presidential primary, however, the ecologically valid within-subjects design was a reasonable choice. In closing, this laboratory research examined processes beyond mere variables implicated in candidate choice, and

instead investigated modifications in political behavior over time and in social context through the use of well-founded and often applied learning theory.

APPENDIX A  
POLITICAL PASSION INVENTORY

# Political Passion Inventory (PPI)

## *Second edition*

published by Project Vote Smart

This 10 part, 60 item inventory assesses your stance on the *ten most important political issues* as determined by the Project Vote Smart team.

For each item of this inventory, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

Please do not write on this packet so other participants can use it. On your Scantron testing form, please pencil in the letter that corresponds to your choice.

*IF YOU HAVE NO FURTHER QUESTIONS, PLEASE BEGIN*



## Issue Set 1:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

1. Abortions should always be illegal.
2. Abortions should always be legal.
3. Abortions should be legal only within the first trimester of pregnancy.
4. Abortions should be legal when the pregnancy resulted from incest or rape.
5. Abortions should be legal when the life of the woman is endangered.
6. Provide funding for family planning programs as a means to decrease the number of abortions.

*PLEASE TURN THE PAGE AND CONTINUE*

## Issue Set 2:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

7. The government should renew the ban on the sale or transfer of semi-automatic guns, except those used for hunting

8. The government should strengthen the enforcement of existing federal restrictions on the purchase and possession of guns.

9. The government should ease federal restrictions on the purchase and possession of guns.

10. Citizens should be allowed to carry concealed guns.

11. Gun manufacturers should be required to provide child-safety locks on guns.

12. Background checks should be required for gun sales between private citizens at gun shows.

PLEASE TURN THE PAGE AND CONTINUE

### Issue Set 3:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

13. The use of the death penalty for federal crimes should be supported.

14. The use of the death penalty for federal crimes should be eliminated.

15. The prison sentences for those who commit non-violent crimes should be reduced.

16. Additional criminal penalties should be imposed if a fetus is killed in the commission of a federal crime against a pregnant woman.

17. Crimes based on gender, sexual orientation, and disability should be prosecuted as federal hate crimes.

18. The enforcement of civil rights should primarily be the responsibility of the federal government.

*PLEASE TURN THE PAGE AND CONTINUE*

## Issue Set 4:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

19. Military tribunals should be used to try suspected terrorists when ordinary civil courts are deemed inappropriate or impractical.

20. The United States should adopt stricter rules for student visa applications from nations known to sponsor terrorism.

21. The United States should grant law enforcement agencies greater discretion to read mail and email, tap phones, and conduct random searches to prevent future terrorist attacks.

22. The United States should hold foreign states accountable for terrorists who operate in their country.

23. The federal government should increase funding to states and cities for homeland security.

24. A policy of pre-emptive strikes against countries deemed to be a threat to national security should be supported.

PLEASE TURN THE PAGE AND CONTINUE

## Issue Set 5:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

25. Welfare recipients should be required to spend at least 40 hours a week in a combination of work and training programs.

26. Funding for childcare programs should be increased.

27. Federal poverty aid should be directed through religious, community-based, or other non-profit organizations.

28. All federal welfare programs should be abolished.

29. Housing assistance for low-income families must continue.

30. Programs promoting marriage should be funded by the federal government.

*PLEASE TURN THE PAGE AND CONTINUE*

## Issue Set 6:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

31. National standards for and testing of public school students should be toughened.

32. Parents should be allowed to use vouchers to send their children to any public school.

33. Parents should be allowed to use vouchers to send their children to any private school.

34. Teachers should be tested frequently and rewarded with merit pay.

35. The mission of early education programs should be changed to improving the math and reading skills of disadvantaged children.

36. Providing education is not a responsibility of the federal government.

*PLEASE TURN THE PAGE AND CONTINUE*

## Issue Set 7:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

37. The number of legal immigrants allowed into the country should be decreased.

38. English should be established as the official national language.

39. The number of visas issues for agricultural workers should be increased.

40. Restrictions barring legal immigrants from using social programs (e.g. public housing, food stamps) should be relaxed.

41. Amnesty should be granted for certain illegal immigrants who already reside in the United States.

42. Asylum seekers coming from countries known to sponsor terrorism should be detained.

*PLEASE TURN THE PAGE AND CONTINUE*

## Issue Set 8:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

43. Providing health care is not a responsibility of the federal government.

44. A universal health care program to guarantee coverage to all Americans regardless of income should be implemented.

45. The Patient's Bill of Rights should be edited to include the right to sue when claims are denied.

46. Prescription drugs should be covered under Medicare.

47. Stem cell research should only be conducted on existing lines of stem cells.

48. Laboratories should be allowed to create lines of stem cells for additional research.

*PLEASE TURN THE PAGE AND CONTINUE*



## Issue Set 9:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

49. Workers should be allowed to invest a portion of their payroll tax in private accounts that they manage themselves.

50. Workers should be allowed to invest a portion of their payroll tax in private accounts managed by private firms contracted by the government.

51. A portion of Social Security's assets should be invested collectively in stocks and bonds instead of U.S. Treasury securities.

52. The payroll tax should be increased to better finance Social Security in its current form.

53. Social security's annual cost-of-living increases should be lowered.

54. The retirement age for when individuals are eligible to receive full Social Security benefits should be raised.

*PLEASE TURN THE PAGE AND CONTINUE*

## Issue Set 10:

For each item of this section, please respond using the scale below.

- (A) Strongly DISAGREE with this statement
- (B) Somewhat DISAGREE with this statement
- (C) UNSURE of my stance on this statement
- (D) Somewhat AGREE with this statement
- (E) Strongly AGREE with this statement

55. Mandatory jail sentences for selling illegal drugs must be upheld.

56. Federally sponsored drug education and treatment programs should be expanded.

57. Possession of small amounts of marijuana should be decriminalized.

58. Doctors should be allowed to prescribe marijuana to their patients for medicinal purposes.

59. Border security should be increased to stop the flow of illegal drugs into the United States.

60. Federal funding for programs associated with the "war on drugs" should be eliminated.

*Thank you for completing the assessment.*

*Please return this booklet and Scantron to the administrator.*

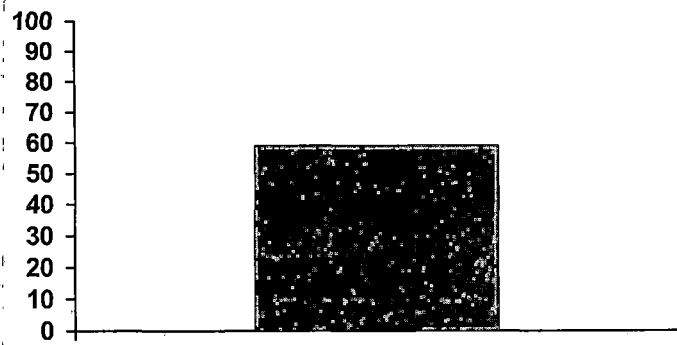
APPENDIX B

CONDITIONED STIMULUS, UNCONDITIONED STIMULUS

ANALOGS



CS



Proportion of agreement (in %)

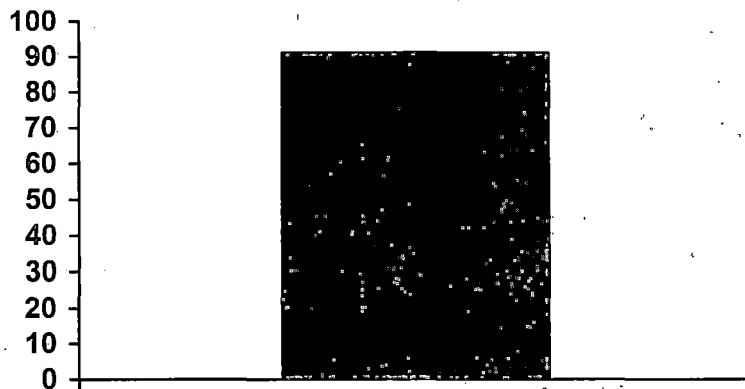
Issue Set 6

US+



Issue Set 3

US++



Proportion of agreement (in %)

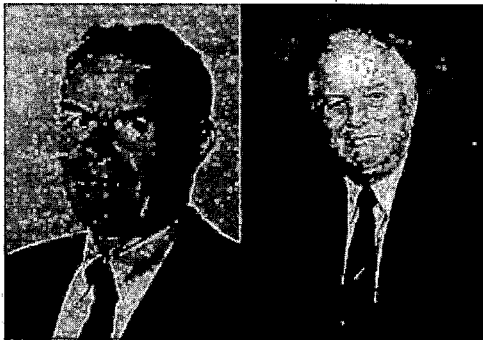
CS



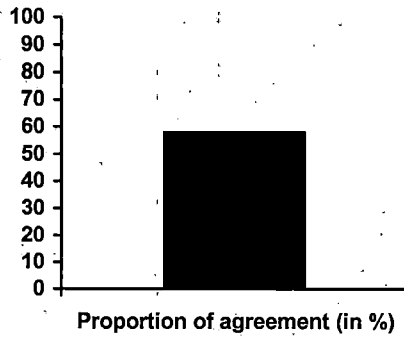
CS

No public record was found

US-



CS

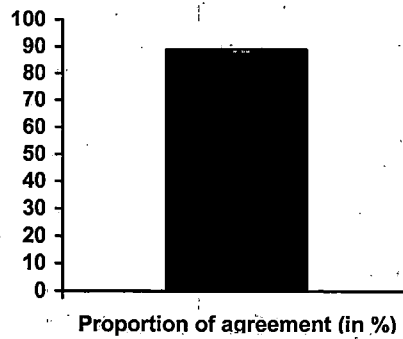


Issue Set 6

US+



CS



Issue Set 3

US++



No public record was found

CS

US-

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## APPENDIX C

### CONDITIONED RESPONSE ANALOG

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CR:

Use the scale below to indicate your likelihood  
of voting for this candidate.

Respond by pressing the corresponding key from  
the scale below.

-4	-3	-2	-1	0	+1	+2	+3	+4
Extremely Unlikely to Vote For					Extremely Likely to Vote For			



APPENDIX D  
ONSCREEN INSTRUCTIONS

### MINUS Two Instructions

Please read the following instructions very carefully.  
If after reading the instructions anything is unclear, ask me,  
and I will clarify them for you.

---

Our lab is assisting a local software company (MINUS Two) in testing their new political software. MINUS Two claims that their software can introduce political candidates to voters like you in a fair and balanced manner. First, MINUS Two collected all available public records and statements made by candidates running for political office over a six month primary election period. Naturally, early in the election cycle there were relatively few candidates in the primary and later in the primary more candidates were campaigning. Second, MINUS Two developed a software program that can link the candidates' political statements with the voters' personal attitudes. Finally, MINUS Two can show voters which political candidates share or do not share their political beliefs with the speed of a computer.

In order to test MINUS Two's political software you will be asked to complete the *Political Passion Inventory (PPI)*. The *PPI* will measure your level of agreement or disagreement toward a series of political issues. After completing the *PPI*, your completed Scantron form with your personal attitudes will be read into the computer and processed using MINUS Two's new political software.

### MINUS Two Instructions (Part 1)

MINUS Two's new political software has completed linking public statements made by political candidates running for public office and the PPI responses you gave just a few minutes ago. Shortly you will see pictures of the political candidates running for public office. Of course, you do not know the candidates' political positions at this time. However, MINUS Two would like to know your first impression of each of the candidates. After looking at each candidate, please use the rating scale below the picture to indicate how likely or unlikely it is that you would vote for the candidate pictured.

Press one of the NEGATIVE numbers on the computer keyboard to indicate how UNLIKELY it is that you would vote for the candidate or press one of the POSITIVE numbers to indicate how LIKELY it is that you would vote for the candidate. Larger negative numbers = a greater likelihood of NOT VOTING FOR the candidate, 0 = unsure of voting intention, and larger positive numbers = a greater likelihood of VOTING FOR the candidate.

Sample Rating Scale

Use the scale below to indicate your likelihood  
of voting for this candidate.

Respond by pressing the corresponding key from  
the scale below.

-4	-3	-2	-1	0	+1	+2	+3	+4
Extremely Unlikely to Vote For					Extremely Likely to Vote For			

## MINUS Two Instructions (Part 2)

MINUS Two wants you to answer questions using feedback about the degree to which you and the candidates share similar political attitudes.

All of the information you will need to answer the questions will be presented on the computer screen.

First, pictures of only the political candidates that entered the primary in the first two months will appear on the computer screen. When you see one candidate's picture that means this candidate shares some of your political attitudes on an issue set from the PPI. If you see a candidate's picture more than once it simply means that the candidate shares your political attitudes on other issue sets from the PPI.

Second, MINUS Two wants you to evaluate the political candidates using a simple rating scale. The following scale will be presented under the picture of each candidate:

Use the scale below to indicate your likelihood  
of voting for this candidate.

Respond by pressing the corresponding key from  
the scale below.

-4	-3	-2	-1	0	+1	+2	+3	+4
Extremely Unlikely to Vote For					Extremely Likely to Vote For			

After making your response, a graph will appear revealing the candidate's level of agreement with you on an issue set from the PPI. The graph is very easy to interpret. Taller bars compared to shorter bars on the graph indicate more agreement between you and the candidate on a particular issue set.

This study is not a test of your personal skills or abilities. At first you will not know anything about the candidates running for office. MINUS Two wants your help in testing their political software by determining which candidates will earn your vote and which candidates will not earn your vote.

MINUS Two Instructions (Part 3)

Once again you will see the candidates running for public office. After looking at each candidate, please use the rating scale below the picture to indicate how likely or unlikely it is that you would vote for the candidate pictured.

Press one of the NEGATIVE numbers on the computer keyboard to indicate how UNLIKELY it is that you would vote for the candidate or press one of the POSITIVE numbers to indicate how LIKELY it is that you would vote for the candidate. Larger negative numbers = a greater likelihood of NOT VOTING FOR the candidate, 0 = unsure of voting intention, and larger positive numbers = a greater likelihood of VOTING FOR the candidate.

### Sample Rating Scale

Use the scale below to indicate your likelihood  
of voting for this candidate.

Respond by pressing the corresponding key from  
the scale below.

-4	-3	-2	-1	0	+1	+2	+3	+4
Extremely Unlikely to Vote For					Extremely Likely to Vote For			



#### MINUS Two Instructions (Part 4)

Once again pictures of candidates running for political office will appear on the computer screen. These pictures include the candidates who entered the primary in its first two months as well as candidates who entered the primary at a later time. When you see pictures of two candidates, this means that both candidates share some of your political attitudes on an issue set from the PPI. If you see two candidates pictured more than once, it simply means that both candidates share some of your political attitudes on other issue sets from the PPI.

Again, MINUS Two wants you to evaluate the political candidates using a simple rating scale. The scale will be presented under the candidates' pictures:

Use the scale below to indicate your likelihood  
of voting for this candidate.

Respond by pressing the corresponding key from  
the scale below.

-4	-3	-2	-1	0	+1	+2	+3	+4
Extremely Unlikely to Vote For					Extremely Likely to Vote For			

After making your response, a graph will appear  
revealing the candidates' level of agreement with you on  
an issue set from the PPI. The graph is very easy to  
interpret. Taller bars compared to shorter bars on the  
graph indicate more agreement between you and the  
candidates on a particular issue set.

MINUS Two Instructions (Part 5)

Once again you will see candidates running for public office. After looking at each candidate, please use the rating scale below the picture to indicate how likely or unlikely it is that you would vote for the candidate pictured.

Press one of the NEGATIVE numbers on the computer keyboard to indicate how UNLIKELY it is that you would vote for the candidate or press one of the POSITIVE numbers to indicate how LIKELY it is that you would vote for the candidate. Larger negative numbers = a greater likelihood of NOT VOTING FOR the candidate, 0 = unsure of voting intention; and larger positive numbers = a greater likelihood of VOTING FOR the candidate.

Sample Rating Scale

Use the scale below to indicate your likelihood  
of voting for this candidate.

Respond by pressing the corresponding key from  
the scale below.

-4	-3	-2	-1	0	+1	+2	+3	+4
Extremely Unlikely to Vote For					Extremely Likely to Vote For			

MINUS Two Instructions (Part 6)

Thank you for participating.

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